DIISOPROPYL METHYLPHOSPHONATE CAS # 1445-75-6

This fact sheet answers the most frequently asked health questions (FAQs) about diisopropyl methylphosphonate. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to diisopropyl methylphosphonate would only occur if you live near the area where it was made and stored. Diisopropyl methylphosphonate may cause skin rashes if your skin comes in contact with it. This chemical has been found in at least 2 of the 1,416 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is diisopropyl methylphosphonate?

(Pronounced dī-ī′sə-prō′pəl měth′əl fŏs′ fō nāt′)

Diisopropyl methylphosphonate is a chemical by-product resulting from the manufacture of Sarin (GB), a nerve gas that was produced by the Army in the 1950s. A chemical by-product is a chemical that is formed while making another substance. Sarin was produced and stored only in the Rocky Mountain Arsenal outside of Denver, Colorado. Production of Sarin in the United States was discontinued in 1957.

Diisopropyl methylphosphonate is not known to occur naturally in the environment. It is not likely to be produced in the United States in the future because of the signing of a chemical treaty that bans the use, production, and stockpiling of poison gases.

Diisopropyl methylphosphonate is a colorless liquid. Other names for it are DIMP, diisopropyl methanephosphonate, phosphonic acid, and methyl-,bis-(1-methylethyl)ester.

What happens to diisopropyl methylphosphonate when it enters the environment?

- Most diisopropyl methylphosphonate enters the groundwater or surface water.
- Most will not enter the air since it does not easily evaporate.
- It does not easily break down in the environment.
- It can stay in water and soil for years.
- Diisopropyl methylphosphonate can enter the soil through the flow of irrigation water.
- Plants can store diisopropyl methylphosphonate.
- It may enter the food chain when animals eat the plants containing it.

How might I be exposed to diisopropyl methylphosphonate?

- Most people would not be exposed to diisopropyl methylphosphonate.
- Living near the site (the Rocky Mountain Arsenal) where Sarin was produced and stored.

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ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html

- Drinking contaminated water.
- Eating vegetables irrigated by water contaminated with diisopropyl methylphosphonate.

How can diisopropyl methylphosphonate affect my health?

Little is known about the effects of diisopropyl methylphosphonate on people's health. Skin rashes were seen in some people who handled dead animals near a pond containing diisopropyl methylphosphonate and other chemicals, but it is not known whether diisopropyl methylphosphonate or another chemical caused the effects.

Animal studies have not shown liver or kidneys problems, infertility, or birth defects after the animals ate or drank diisopropyl methylphosphonate. Some effects on the blood and nervous system have been seen in animals who ate or drank diisopropyl methylphosphonate at high levels.

How likely is diisopropyl methylphosphonate to cause cancer?

The EPA has concluded that diisopropyl methylphosphonate is not classifiable as to its carcinogenicity to humans.

No carcinogenicity studies on diisopropyl methylphosphonate are available in people or animals.

Is there a medical test to show whether I've been exposed to diisopropyl methylphosphonate?

Once inside the body, diisopropyl methylphosphonate is rapidly converted to isopropyl methylphosphonic acid (IMPA), which is rapidly cleared from the blood. Tests can measure IMPA in the blood or urine. However, these tests are useful only for recent exposure because IMPA leaves the body rapidly.

Has the federal government made recommendations to protect human health?

The EPA advises that adults should not drink water containing more than 0.6 milligrams of diisopropyl methylphosphonate per liter (0.6 mg/L) of water for a lifetime. They also advise that children should not drink water containing more than 8 mg/L of diisopropyl methylphosphonate for a 1-day or longer period.

Glossary

Carcinogenicity: Ability to cause cancer.

CAS: Chemical Abstracts Service.

Milligram (mg): One thousandth of a gram.

Source of Information

Agency for Toxic Substances and Disease Registry (ATSDR). 1998. Toxicological profile for diisopropyl methylphosphonate. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Animal testing is sometimes necessary to find out how toxic substances might harm people and how to treat people who have been exposed. Laws today protect the welfare of research animals, and scientists must follow strict guidelines.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 404-639-6359. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.